DTC	P2769	Torque Converter Clutch Solenoid Circuit Low (Shift Solenoid Valve DSL)

DTC	P2770	Torque Converter Clutch Solenoid Circuit High (Shift Solenoid Valve DSL)

DESCRIPTION

The shift solenoid valve DSL is turned ON and OFF by signals from the ECM to control the hydraulic pressure acting on the lock-up relay valve, which then controls operation of the lock-up clutch.

DTC No.	DTC Detection Condition	Trouble Area
P2769	ECM detects short in shift solenoid valve DSL circuit when shift solenoid valve DSL is operated (2 trip detection logic)	• Short in shift solenoid valve DSL circuit • Shift solenoid valve DSL • ECM
P2770	ECM detects open in shift solenoid valve DSL circuit when shift solenoid valve DSL is not operated (2 trip detection logic)	• Open in shift solenoid valve DSL circuit • Shift solenoid valve DSL • ECM

Fail-safe function:
If the ECM detects a malfunction, it turns the shift solenoid valve DSL OFF.

MONITOR DESCRIPTION

Torque converter lock-up is controlled by the ECM based on engine rpm, engine load, engine temperature, vehicle speed, transmission temperature, and shift position selection. The ECM determines the lock-up status of the torque converter by comparing the engine rpm (NE) to the input rpm (NT). The ECM calculates the actual transmission gear by comparing the input rpm (NT) to the output rpm (SP2). When conditions are appropriate, the ECM requests "lock-up" by applying control voltage to the shift solenoid valve DSL. When the shift solenoid valve DSL is opened, the shift solenoid valve DSL applies pressure to the lock-up relay valve and locks the torque converter clutch. If the ECM detects an open or short in the shift solenoid valve DSL circuit, the ECM interprets this as a fault in the shift solenoid valve DSL or its circuit. The ECM will illuminate the MIL and store a DTC.

MONITOR STRATEGY

Related DTCs	P2769: Shift solenoid valve DSL/Range check (Low resistance) P2770: Shift solenoid valve DSL/Range check (High resistance)
Requires sensors/Components	Shift solenoid valve DSL
Frequency of operation	Continuous
Duration	0.064 sec.
MIL operation	2 driving cycles
Sequence of operation	None

TYPICAL ENABLING CONDITIONS

P2769: Range check (Low resistance)

The monitor will run whenever this DTC is not present	None
Shift solenoid valve DSL	ON
Solenoid current cut status	Not cut
Battery voltage	8 V or more
Starter	OFF
Ignition switch	ON

P2770: Range check (High resistance)

The monitor will run whenever this DTC is not present	None

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Shift solenoid valve DSL	ON
Battery voltage	8 V or more
Starter	OFF
Ignition switch	ON

TYPICAL MALFUNCTION THRESHOLDS

P2769: Range check (Low resistance)

Shift solenoid valve DSL resistance	8 Ω or less

P2770: Range check (High resistance)

Shift solenoid valve DSL resistance	100 kΩ or more

COMPONENT OPERATING RANGE

Shift solenoid valve DSL	Resistance: 11 to 13 Ω at 20°C (68°F)

WIRING DIAGRAM

Refer to DTC P0741 (see page).

INSPECTION PROCEDURE

| **1**	**INSPECT TRANSMISSION WIRE (SHIFT SOLENOID VALVE DSL)**

Wire Harness Side

DSL

C136383E08
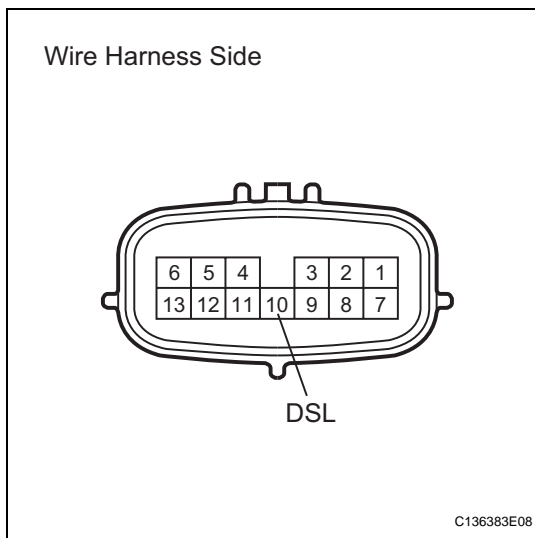
(a) Disconnect the B32 wire connector.
(b) Measure the resistance of the transmission wire.
   Standard resistance

Tester Connection	Condition	Specified Condition
10 (DSL) - Body ground	**20°C (68°F)**	**11 to 13 Ω**

NG	**Go to step 3**

OK

AX

2	CHECK WIRE HARNESS (TRANSMISSION WIRE - ECM)

Wire Harness Side

B30

DSL

A107892E77
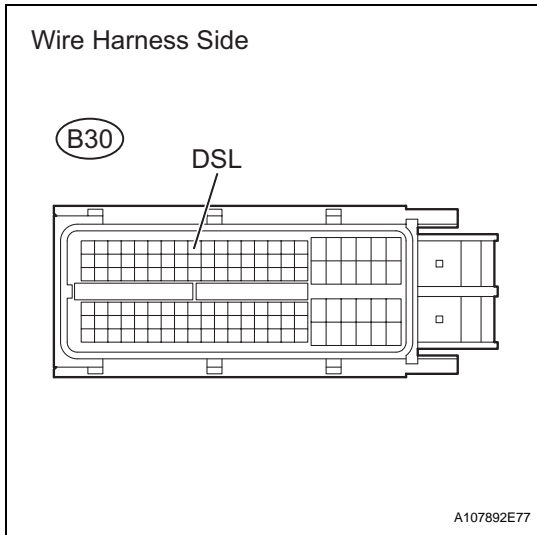
(a) Disconnect the B30 ECM connector.
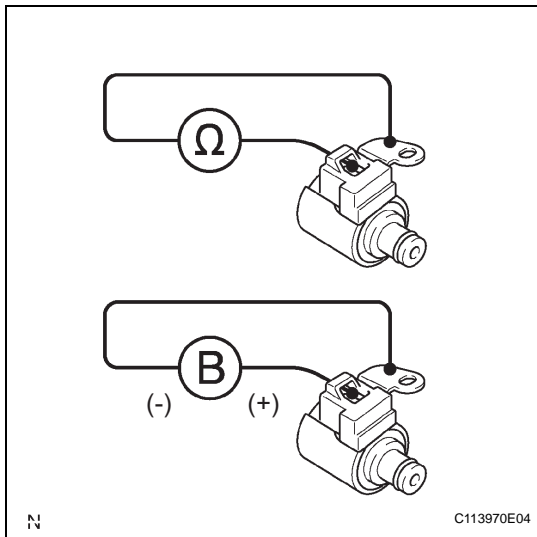(b) Measure the resistance of the wire harness side connector.
   Standard resistance

Tester Connection	Condition	Specified Condition
B30-9 (DSL) - Body ground	**20°C (68°F)**	**11 to 13 Ω**

NG > | REPAIR OR REPLACE HARNESS AND CONNECTOR |

OK

REPLACE ECM

3	INSPECT SHIFT SOLENOID VALVE DSL

Ω

B
(-)   (+)

C113970E04

(a) Remove the shift solenoid valve DSL.
(b) Measure the resistance between the solenoid valve terminal and solenoid valve body.
   Standard resistance:
   11 to 13 Ω at 20°C (68°F)
(c) Connect the battery's positive (+) lead to the terminal of the solenoid valve connector, and the negative (-) lead to the solenoid body. Then check that the valve moves and makes an operating noise.
   OK:
   Valve moves and makes operating noise.

NG > | REPLACE SHIFT SOLENOID VALVE DSL |

OK

REPAIR OR REPLACE TRANSMISSION WIRE

AX